

What is claimed is:

1. An optical fiber for a laser therapy apparatus, comprising:
a core which is provided as a center of the optical fiber;
a clad which is coaxial with the core and covers the outside of the core;
a protective layer that is coaxial with the core and the clad, and covers the outside of the clad to expose a tip-side surface of the clad; and
a titanium compound to be attached on a tip portion of the optical fiber.
2. An optical fiber as claimed in Claim 1, wherein the optical fiber is a quartz fiber.
3. An optical fiber as claimed in Claim 1, wherein the titanium compound attaches on at least exposed portion of the clad
4. An optical fiber as claimed in Claim 1, wherein the titanium compound is titanium oxide.
5. A laser therapy apparatus comprising:
an optical source that emits a laser beam; and
a light-guiding part for irradiating the laser beam to a target area to be treated, in which at least a tip portion of the light-guiding part is formed of an optical fiber, the optical fiber comprises:
a core which is provided as a center of the optical fiber;
a clad which is coaxial with the core and covers the outside of the core;
a protective layer that is coaxial with the core and the clad, and covers the outside of the clad to expose a tip-side surface of the clad; and
a titanium compound to be attached on a tip portion of the optical fiber.

6. A laser therapy apparatus as claimed in Claim 5, wherein the titanium compound attaches on the tip portion of the optical fiber by a laser beam after contacting the tip portion of the optical fiber with titanium oxide powders.

7. A laser therapy apparatus as claimed in Claim 5, wherein the optical fiber is a quartz fiber.

8. A laser therapy apparatus as claimed in Claim 5, wherein the titanium compound attaches on at least exposed portion of the clad.

9. A laser therapy apparatus as claimed in Claim 5, wherein the titanium compound is titanium oxide.

10. A laser therapy apparatus as claimed in Claim 5, wherein the optical fiber is detachable from the light-guiding part.

11. A laser therapy apparatus, comprising:
an optical source for emitting a laser beam and a light-guiding part for irradiating the laser beam to a target area to be treated, where at least a tip portion of the light-guiding part is formed of an optical fiber, wherein
a protective layer on a tip portion of the optical fiber is removed to expose side surface of a clad,
the tip portion of the optical fiber is brought into contact with a titanium compound,
and
the titanium compound is attached on the tip portion of the optical fiber by a laser beam radiation from the optical fiber.

12. A laser therapy apparatus as claimed in Claim 11, wherein the titanium compound attaches on the tip portion of the optical fiber by the laser beam after contacting the tip portion of the optical fiber with titanium oxide powders.

13. A laser therapy apparatus as claimed in Claim 11, wherein the optical fiber is a quartz fiber.

14. A laser therapy apparatus as claimed in Claim 11, wherein the titanium compound is attached on at least exposed portion of the clad.

15. A laser therapy apparatus as claimed in Claim 11, wherein the titanium compound is titanium oxide.

16. A laser therapy apparatus as claimed in Claim 11, wherein the optical fiber is detachable from the light-guiding part.

17. A method for manufacturing a laser therapy apparatus, comprising the steps of:
applying an optical fiber to form at least a tip portion of a light-guiding part for irradiating a laser beam to a target to be treated;

removing a protective layer on the tip portion of the optical fiber to expose the side surface of a clad;

bringing the tip portion of the optical fiber into contact with a titanium compound;
and

attaching the titanium compound on the tip portion of the optical fiber by a laser beam radiation from the optical fiber.

18. A laser therapy method, comprising the steps of:
removing a protective layer on a tip portion of an optical fiber having a core, a clad, and a protective layer to expose side surface of the clad;

bringing the tip portion of the optical fiber into contact with a titanium compound;
attaching the titanium compound on the tip portion of the optical fiber by a laser beam radiation from the optical fiber;

bringing the tip portion of the optical fiber on which the titanium compound is being attached into contact with a target area to be treated; and
irradiating a laser beam to the target area to be treated through the optical fiber.

19. A laser therapy method, comprising the steps of:

bringing a tip portion of an optical fiber having a core, a clad, and a protective layer, where side surface of the clad is being exposed by removing the protective layer and a titanium compound is attached, into contact with a target area to be treated; and
irradiating a laser beam to the target area to be treated through the optical fiber.

20. A laser therapy method, comprising the steps of:

applying a titanium compound on a target to be treated;
bringing a tip portion of an optical fiber having a core, a clad, and a protective layer, where the side surface of the clad is being exposed by removing the protective layer, into contact with a target area to be treated; and
irradiating a laser beam to the target area to be treated through the optical fiber.